



Higher National Graded Unit specification

General information for centres

This Graded Unit has been validated as part of the HND Information Technology. Centres are required to develop the assessment instrument in accordance with this validated specification. Centres wishing to use another type of Graded Unit or assessment instrument are required to submit proposals detailing the justification for change for validation.

Graded Unit title: Information Technology: Graded Unit 2

Graded Unit code: F0NA 35

Type of Graded Unit: Project

Assessment Instrument: Practical Assignment

Credit points and level: 2 HN credits at SCQF level 8: (16 SCQF credit points at SCQF level 8*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Purpose: This Graded Unit is designed to provide evidence that the candidate has achieved the following principal aims of the HND Information Technology:

- ◆ To prepare the candidate for employment in an Information Technology, Database Administration or similar post at technical or professional level.
- ◆ To prepare the candidate for progression to Higher Education degree study in Information Systems, Information Technology or a related discipline.

Recommended prior knowledge and skills: It is recommended that the candidate should have completed or be in the process of completing the following Units relating to the above specific aims prior to undertaking this Graded Unit:

- ◆ DE1N 34 *Information Technology in Business – Databases*
- ◆ D76N 34 *Software Development: Applications Development*
- ◆ DV6E 34 *Database Design Fundamentals*
- ◆ DX43 35 *Information Technology: Legislation and Codes of Practice*
- ◆ DM30 35 *Project Management 1*
- ◆ DH3D 35 *Software Development: Relational Database Systems*
- ◆ DH21 34 *Working within a Project Team*

Core Skills: This Graded Unit gives automatic certification of the Core Skill in Problem Solving at SCQF level 6.

General information for centres (cont)

Assessment: This Graded Unit will be assessed by the use of a project. The project brief should provide the candidate with the opportunity to produce evidence that demonstrates she/he has met the aims of the Graded Unit.

Assessment is based on the **product, its evaluation** and the planning and development **process**.

A candidate must:

- ◆ interpret the needs of the project from the brief
- ◆ gather information to plan and develop the project
- ◆ decide upon and develop a design approach
- ◆ carry out the development
- ◆ evaluate the product and process
- ◆ evaluate their own performance

Each candidate must undertake an individual project.

Administrative Information

Graded Unit code: F0NA 35
Graded Unit title: Information Technology: Graded Unit 2
Original date of publication: August 2006
Version: 02 (August 2009)

History of changes:

Version	Description of change	Date
02	Amended: Conditions of Assessment including minimum marks per stage, Minimum Evidence Requirements item detail and marks allocation, Conditions of assessment to include marking in stages, Instructions for designing assessment tasks. Corrected type of Assessment Instrument.	12/08/09

Source: SQA

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Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates

Graded Unit title: Information Technology: Graded Unit 2

Conditions of assessment

The candidate should be given a date for completion of the Practical Assignment. However, the instructions for the assessment task should be distributed to allow the candidate sufficient time to assimilate the details and carry out the assignment. During the time between the distribution of the task and the completion date, assessors may answer questions, provide clarification, guidance and reasonable assistance. In the initial phase, submission dates should be agreed for each stage. Each stage of the assessment should be marked as soon as possible after each submission date. The final grading given should reflect the quality of the candidate's evidence at the completion date. Reassessment of this Graded Unit should be based on a significantly different assessment task. Remediation processes are detailed in the SQA publication *Guidance for the Implementation of Graded Units in Higher National Certificates and Diplomas*.

If a candidate is found to have cheated or to have gained an unfair advantage the assessor has the authority to deem that the candidate has failed the assessment. Candidates should provide references in the form of footnotes and/or bibliography for any materials used and/or accessed which is not their own. The practical assignment will be based on the development of a solution for a real client or on a scenario supplied by the Centre. If the method selected by a centre is a scenario given to a number of candidates then the centre must ensure the originality and uniqueness of each candidate submission.

At this level, candidates should work independently. Each centre must ensure that the project is the authenticated work of the individual candidate. For example, centres may wish to informally question candidates at various stages on their knowledge and understanding of the project on which they have embarked. Centres should ensure that where research etc, is carried out in other establishments or under the supervision of others that the candidate does not receive undue assistance.

If a candidate fails the project overall or wishes to upgrade, then this must be done using a *substantially different* project, ie all stages are undertaken using a new project, assignment, case study, etc. In this case, a candidate's grade will be based on the achievement in the re-assessment, if this results in a higher grade.

Instructions for designing the assessment task

The assessment task is a project. The project undertaken by the candidate must be a complex task which involves:

- ◆ variables which are complex or unfamiliar
- ◆ relationships which need to be clarified
- ◆ a context which may be familiar or unfamiliar to the candidate

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The assessment task must require the candidate to:

- ◆ analyse the task
- ◆ identify the requirements for the project
- ◆ plan the solution for the project
- ◆ organise and document work to project completion
- ◆ develop the product to meet the solution
- ◆ test the solution tracking any changes and making amendments where required
- ◆ critically evaluate the approach taken developing the project and draw conclusions.
- ◆ the critical analysis should cover two areas:
 - 1 **product produced** — reflect on the product that has been produced, critically evaluating the approach and methods used in developing the project
 - 2 **individual reflective analysis** — a candidate should provide an evaluation of their activities drawing conclusions to help future performance
- ◆ produce evidence of meeting the aims which this Group Award Graded Unit has been designed to cover.

Guidance on grading candidates

Candidates who meet the minimum Evidence Requirements will have their achievement graded as C — competent, or A — highly competent or B somewhere between A and C. The grade related criteria to be used to judge candidate performance for this Graded Unit is specified in the following table.

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Grade A	Grade C
<p>Is a seamless, coherent piece of work which:</p> <ul style="list-style-type: none"> ◆ has sufficient evidence for all three stages of the project, is produced to a high standard, and is clearly inter-related. ◆ is complete and demonstrates the candidate's high level of performance from each stage, Planning, Developing, Evaluating. ◆ demonstrates an accurate and insightful interpretation of the project brief. ◆ is highly focused and relevant to the tasks associated with the project brief. ◆ is clear and well structured throughout and the language used is of a uniformly high standard in terms of level, accuracy and technical content. ◆ effectively consolidates and integrates the required knowledge and skills. uses resources effectively 	<p>Is a co-ordinated piece of work which:</p> <ul style="list-style-type: none"> ◆ has sufficient evidence for all three stages of the project and is produced to an adequate standard. ◆ is complete and demonstrates the candidate's acceptable level of performance from each stage, Planning, Developing, Evaluating. ◆ demonstrates an acceptable interpretation of the project brief ◆ is focused and relevant to the tasks associated with the project brief. ◆ is satisfactorily structured and the language used is adequate in terms of level, accuracy and technical content. ◆ consolidates and integrates knowledge and skills, but may lack some continuity and consistency.

The project will be marked out of 100. Assessors will mark each stage of the project taking into account the criteria outlined. Candidates can only progress to the next stage if they have met the minimum Evidence Requirements of the previous stage. At the end of each stage, there should be opportunities for remediation/reassessment on that particular stage. Remediation processes are detailed in the SQA publication *Guidance for the Implementation of Graded Units in Higher National Certificates and Diplomas*. All allocated marks will be aggregated to arrive at an overall mark for the project. Assessors will assign an overall grade to the candidate for this Graded Unit based on the following grade boundaries.

- A = 70% — 100%
- B = 60% — 69%
- C = 50% — 59%

The candidate must achieve a minimum of:

- ◆ 10 marks for the Planning Stage
- ◆ 30 marks for the Developing Stage
- ◆ 10 marks for the Evaluating Stage

The following marking scheme should be used to grade candidates' work.

Note: the candidate must achieve all of the minimum evidence specified below for each stage of the project in order to achieve the Graded Unit.

Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates (cont)

Evidence Requirements

The project consists of three stages: planning; developing; and evaluating. The following table specifies the minimum evidence required to pass each stage.

Project stage	Minimum Evidence Requirements
Stage 1 — Planning 20% maximum	<p>Evidence, in the form of a report, containing the initial analysis of what is involved in the project, identification of the key factors influencing the project, how they relate to one another and their relative importance.</p> <ul style="list-style-type: none"> ◆ Initial Analysis up to 6 marks <ul style="list-style-type: none"> — identifying user requirements — identifying constraints — determining acceptable performance levels ◆ Selection and justification of approach up to 4 marks ◆ Identification of delivery platform, eg hardware and software up to 2 marks ◆ Production of an project plan: Up to 6 marks for: <ul style="list-style-type: none"> — identifying milestones — identifying main tasks — identifying resources — information sources used — up to 2 marks <p><i>The candidate must achieve all of the minimum evidence specified above in order to pass the Planning stage.</i></p>

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Project stage	Minimum Evidence Requirements
Stage 2 — Developing 60% maximum	<p>The assessor’s role is as a facilitator and so to gain high marks the candidate must demonstrate a high degree of autonomy in the developing activities.</p> <p>Evidence of the candidate designing a solution to the project, implementing the design, testing the solution and managing the project.</p> <ul style="list-style-type: none"> ◆ Analysis Up to 15 marks the analysis of data and functional requirements of the required system, eg production of data models, normalisation of data structures. ◆ Design Up to 15 marks <ul style="list-style-type: none"> — the design and production of the HCI (human computer interface) using appropriate design principles, which should include Reasons for their choice. Up to 6 marks — production of a test strategy, test plan and test data. Up to 6 marks — description of any legislation that may affect the implementation of the solution. Up to 3 marks ◆ Implementation Up to 30 marks <ul style="list-style-type: none"> — implementing the solution making effective use of hardware, software and the selected development tool throughout the implementation of the product. Up to 20 marks — testing the solution using the test plan and test data developed during the design phase tracking any changes and making amendments where required. Up to 8 marks — managing the project. Up to 2 marks <p><i>The candidate must achieve all of the minimum evidence specified above in order to pass the Developing stage.</i></p>

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Project stage	Minimum Evidence Requirements
Stage 3 — Evaluating 20% maximum	<p>The assessor’s role is as a facilitator and so to gain high marks the candidate must demonstrate a high degree of autonomy in the evaluating activities.</p> <p>All of the evaluation should be in the form of a report showing the evaluation of the effectiveness of the approach/strategy taken, which includes all stages of the activity.</p> <p>The evaluation of the product should include:</p> <p>Up to 10 marks for:</p> <ul style="list-style-type: none"> ◆ the analysis of the project brief ◆ the project plan ◆ the effectiveness of the solution including strengths and weaknesses ◆ implementing the solution ◆ testing the implementation ◆ the documentation produced <p>The evaluation of the candidate performance should include:</p> <p>Up to 10 marks for:</p> <ul style="list-style-type: none"> ● the outline of the assignment ● the handling of unforeseen events ● the identification of any knowledge and skills gained and/or developed ● evaluating the effectiveness of the problem solving activity in meeting the original scenario ● concluding how the process of carrying out the project could be improved ● recommendations for the future <p><i>The candidate must achieve all of the minimum evidence specified above in order to pass the Evaluating stage.</i></p>

Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates (cont)

Support notes

This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional length is 80 hours.

Guidance on the content and context of this Unit

The project should be designed to meet the expectations of the aims and objectives of the HND Information Technology Award, which are:

- ◆ To prepare the candidate for employment in an Information Technology, Database Administration or similar post at technical or professional level.
- ◆ To prepare the candidate for progression to higher education degree study in Information Systems, Information Technology or a related discipline.

For example, the candidate could be issued with a scenario, which requires that further information should be gathered to flesh out this scenario. The project should allow the candidate to determine the needs of the user, plan, implement and evaluate his/her work. It may be that the project requirements could take the form of analysing raw data using appropriate standard analysis techniques and constructing a database, which should have a front end to automate tasks for the user. The candidate should take account of the HCI (Human Computer Interface) when designing the user screens, which should be consistent in layout and allow a user to be intuitive in their usage of these screens. Output should be of a consistently high standard.

The Assessor should meet the candidate regularly to discuss their progress through the stages. These meetings should be determined from discussions and agreed between the Assessor and the candidate. This should be treated by the Assessor as a management review of the candidate's activities, keeping track of the progress of the project and comparing the actual with the planned progress. This opportunity will allow the Assessor to modify deliverable dates (in agreement with the candidate) so that the candidate manages to complete the work in the required time. An Assessor should take a 'project' approach to this Graded Unit with a candidate delivering a coherent piece of work. The project undertaken should provide the candidate with the opportunity to develop knowledge and skills gained in the other Units of study.

An assessor should ensure that the project allows a candidate to produce the required evidence at SCQF level 8.

Plagiarism is a major issue for assessors in education and the assessor must ensure the authenticity of the candidate evidence. A candidate should be formally issued with the statement, which follows:

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Plagiarism

Assessors are required to ensure the authenticity of the candidate's work. Regular progress meetings are one way of ensuring that the candidate's work is their own. The opportunity should be taken at these meetings to use probing questions to authenticate the assessment material. Plagiarism is a potential issue with written work. Assessors must ensure that the candidate is aware of their centre's plagiarism policy and ensure that submitted material is consistent with that policy. Further advice about plagiarism is available from SQA.

Recommended prior knowledge and skills

It is recommended that the candidate should have completed or be in the process of completing the following Units related to the specific aims of the award prior to undertaking this Graded Unit:

- ◆ DE1N 34 *Information Technology in Business – Databases*
- ◆ D76N 34 *Software Development: Applications Development*
- ◆ DV6E 34 *Database Design Fundamentals*
- ◆ DX43 35 *Information Technology: Legislation and Codes of Practice*
- ◆ DM30 35 *Project Management 1*
- ◆ DH3D 35 *Software Development: Relational Database Systems*
- ◆ DH21 34 *Working within a Project Team*

The project brief should include a sample of topics and issues selected from the following list of Outcomes from mandatory Units. The assessor may want to consider some suggestions from the table below:

Unit code	Unit title	Topics/Issues
DE1N 34	<i>Information Technology in Business – Databases</i>	Analysis of a business problem and identification of information needs: database solution.
D76N 34	<i>Software Development: Applications Development</i>	Human Computer Interface – Designing and developing a user friendly automated application interface.
DV6E 34	<i>Database Design Fundamentals</i>	Normalisation, entity modelling
DX43 35	<i>Information Technology: Legislation and Codes of Practice</i>	Describe Legislation applying to the IT Professional in terms of: Data Protection Act, Health & Safety, Intellectual Property Rights, Computer Misuse Act, etc.

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Unit code	Unit title	Topics/Issues
DM30 35	<i>Project Management 1</i>	Develop and manage an appropriate plan using project management software. Produce standard and customised reports as required.
DH3D 35	<i>Software Development: Relational Database Systems</i>	Creating a Relational Database Design from user requirements. Implementing structures and manipulate data in a relational database management system.
DH21 34	<i>Working within a Project Team</i>	Report writing skills

Note: The list of Topics/Issues in the above table is not exhaustive. Depending on the characteristics of the project brief, the assessor may draw Outcomes from other Units in the HN framework provided such Units were undertaken by the candidate.

There is opportunity for peer evaluation of the product design and implementation. The candidates may be inclined to do this anyway but would benefit from a more formalised approach. The Assessor must reiterate to the candidates that direct copying of work is not allowed, but in industry it would be normal practice to confer with colleagues and stimulate discussion, which may assist with problem solving.

Using ICT to Support Assessment

Candidates should be encouraged to produce an e-portfolio of all work. This may lift barriers for distance learning students. If e-portfolios are used the assessor should consult the following SQA Publications:

- ◆ *SQA Guidelines on Online Assessment for Further Education* (March 2003)
- ◆ *Assessment and Quality Assurance in Open and Distance Learning* (February 2001)

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements